保密等级：机密

SPECIFICATION

产品规格书

SKI.WB800DS2.1

IEEE 802.11b/g/n/ac/ax 1T1R USB+SDIO Wi-Fi

Integrated BT 5.0

2.4G/5G Dual Band Module

Approved by Shikun		
Checked by 审核	Rechecked by 复审	Approved by 批准

Please send the original back to us after you have approved and signed.

客户承认签章后敬请寄回正本一份。

Approved by customer		
Comments 确认意见	Approved by 批准签字	Company's seal 盖章
Customer's Name:		

REVISION HISTORY.

VERSION	DATE	BOARD ID	PAGE	DESCRIPTION	AUTHOR
V0.1	2021.6.8	SKI.WB800DS2.1	All	First Issued	

Content

1. Introduction（简介）

SKI.WB800DS2.1 module is based on AIC8800M solution.SKI.WB800DS2.1 is a Wi-Fi 6 / BT 5.0 combo low-power, high-performance and high-integrated dual band wireless communication module which is designed for meeting the customers’ needs of small size and low cost. This module supports both WLAN and BT functions. Its WLAN/BT function supports the USB 2.0 / SDIO 2.0 interface, and its BT function supports the UART interface, and the module meets the requirements of standard protocol IEEE 802.11 b/g/n/ac/ax. Such units as power management, power amplifier and low-noise amplifier are integrated in the main chip of the module. Its WLAN PHY rate is up to 266.8Mbps@TX. The module can be applied in smart sound boxes, set-top boxes, game machines, printers, IP cameras, tachographs, and other smart equipment. This documentation describes the engineering requirements specification.

SKI.WB800DS2.1 模块基于 AIC8800D 方案。SKI.WB800DS2.1 是一款 Wi-Fi 6 / BT 5.0 组合的低功耗、高性能、高集成度双频无线通信模块，专为满足客户小尺寸、低成本的需求而设计。该模块支持 WLAN 和 BT 功能。WLAN/BT 功能支持 USB 2.0 / SDIO 2.0 接口，BT 功能支持 UART 接口，满足 IEEE 802.11 b/g/n/ac/ax 标准协议要求。本文档描述了工程要求规范。

2. Features（特性）

	IEEE Std. 802.11b/g
	IEEE Std. 802.11n
	IEEE Std. 802.11ac
	IEEE Std. 802.11ax
	BT 5.0
Chip Solution 芯片方案	AIC8800D
Band 波段	2.4GHz/ 5GHz
Dimensions 尺寸	12mm×12mm×1.8mm

Model 型号	**Installation Mode** 安装方式	**Protocol l** 支持标准	**Frequency** 频段	**Antenna** 天线	**Remark** 备注
SKI.WB800DS2.1	SMD	IEEE 802.11b/g/n/ac/ax BT 5.0	2.4GHz/5GHz	LGA Pad*1	12mm×12mm×1.8mm

3. Block Diagram（结构框图）

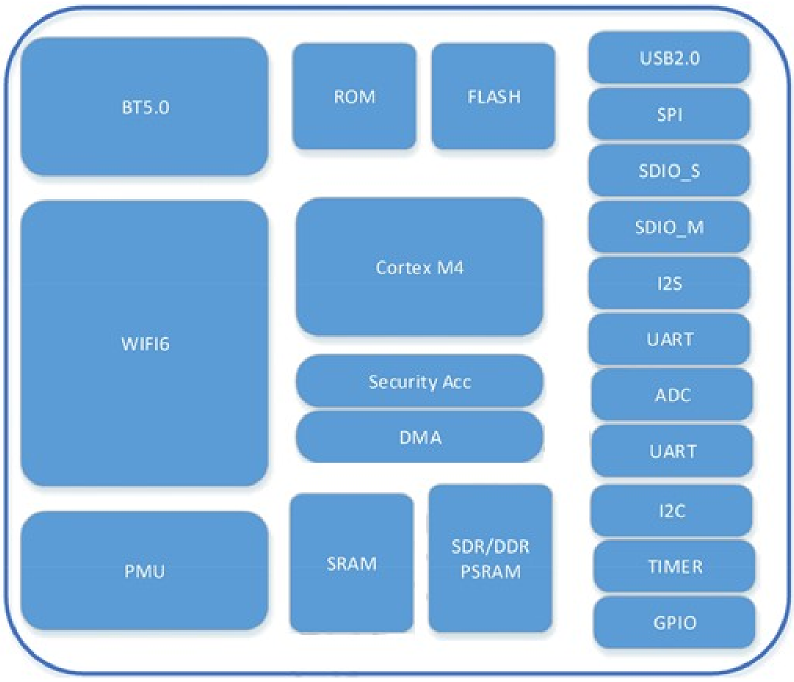
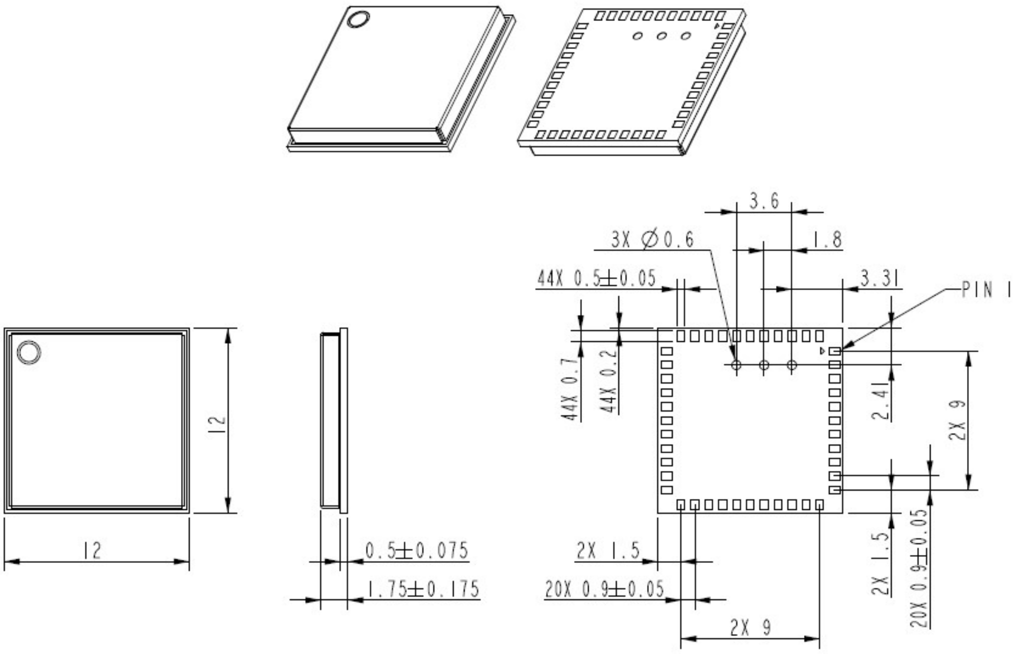


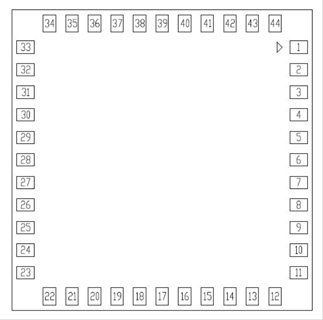
Figure 1 SKI.WB800DS2.1 Block Diagram

4. Package Outline and Mounting（外形及安装尺寸）



TOLERANCE UNLESS OTHERWISE SPECIFIED:±0.1mm

5. Pin Definition（引脚定义）



模组的 LGA44 PAD 底视图

PIN	SYMBOL	Type	DESCRIPTION
1	GND	G	Grounded
2	WLAN_BT_ANT	RF	WLAN/BT RF I/O Port
3	GND	G	Grounded
4	NC	-	-
5	NC	-	-
6	GPIOB5	I/O	GPIOB5 PIN
7	GPIOB3	I/O	GPIOB3 PIN
8	GPIOB1	I/O	GPIOB1 PIN
9	**VBAT**	**P**	**Voltage Input of Main Power Supply**
10	USB_DM	I/O	Wi-Fi USB DM Pin
11	USB_DP	I/O	Wi-Fi USB DP Pin
12	PWR_KEY	I	Power Enabling/Disabling
13	D_WAKE_H	I/O	Wi-Fi Wake Up Host
14	SDIO_D2	I/O	Wi-Fi SDIO Port
15	SDIO_D3	I/O	Wi-Fi SDIO Port
16	SDIO_CMD	I/O	Wi-Fi SDIO Port
17	SDIO_CLK	I/O	Wi-Fi SDIO Port
18	SDIO_D0	I/O	Wi-Fi SDIO Port
19	SDIO_D1	I/O	Wi-Fi SDIO Port
20	GND	G	Ground
21	NC	-	-
22	VIO	P	VDDIO
23	NC	-	-
24	GPIOB4	I/O	GPIOB4 PIN
25	NC	-	-
26	NC	-	-
27	NC	-	-

28	NC	-	-
29	UART0_TX	O	UART0 TX (Test/Download Use)
30	UART0_RX	I	UART0 RX (Test/Download Use)
31	GND	G	Ground
32	NC	-	-
33	GND	G	Ground
34	GPIOB7	I/O	GPIOB7 PIN
35	GPIOB6	I/O	GPIOB6 PIN
36	GND	G	Ground
37	NC	-	-
38	NC	-	-
39	NC	-	-
40	NC	-	-
41	UART1 RTS	I/O	BT UART1 RTS
42	UART1 TX	I/O	BT UART1 TX
43	UART1 RX	I/O	BT UART1 RX
44	UART1 CTS	I/O	BT UART1 CTS

6. Product Pictures（实物图片）

正视图（**top view**）

背视图（**bottom view**）

7. Key Materials（关键物料）

序号	关键件名称	型号	规格/材料	备注
1	集成电路	AIC8800D	48-QFN	
2	PCB	SKI.WB800DS2.1	FR-4,4LAY	
3	晶体振荡器	CN4026M00012T2115181	26MHz	

8. General Requirements（一般要求）

No.	Feature	Description
8-1	Operation Voltage 工作电压范围	3.3V+/-0.3
8-2	Current Consumption 最大电流	TBD
8-3	Ripple 纹波	TBD
8-4	Operation Temperature 工作温度范围	-20°C to +80°C
8-5	Antenna Type 天线类型	External antenna
8-6	SDIO 2.0/USB2.0/UART Interface	SDIO 2.0/USB2.0/UART 接口
8-7	Storage Temperature 存储温度	-40°C to +85°C

9. Electrical Characteristics（电气特性）

除非另有说明，电气规范试验都在下列条件下进行:

环境条件温度：25℃±5℃；

电源电压：模块输上入电压 3.3V+/-0.3；

The Test for electrical specification was performed under the following condition unless otherwise specified：

Ambient condition Temperature :25℃ ± 5℃;

Power supply voltages：3.3V+/-0.3 input power at the Module;

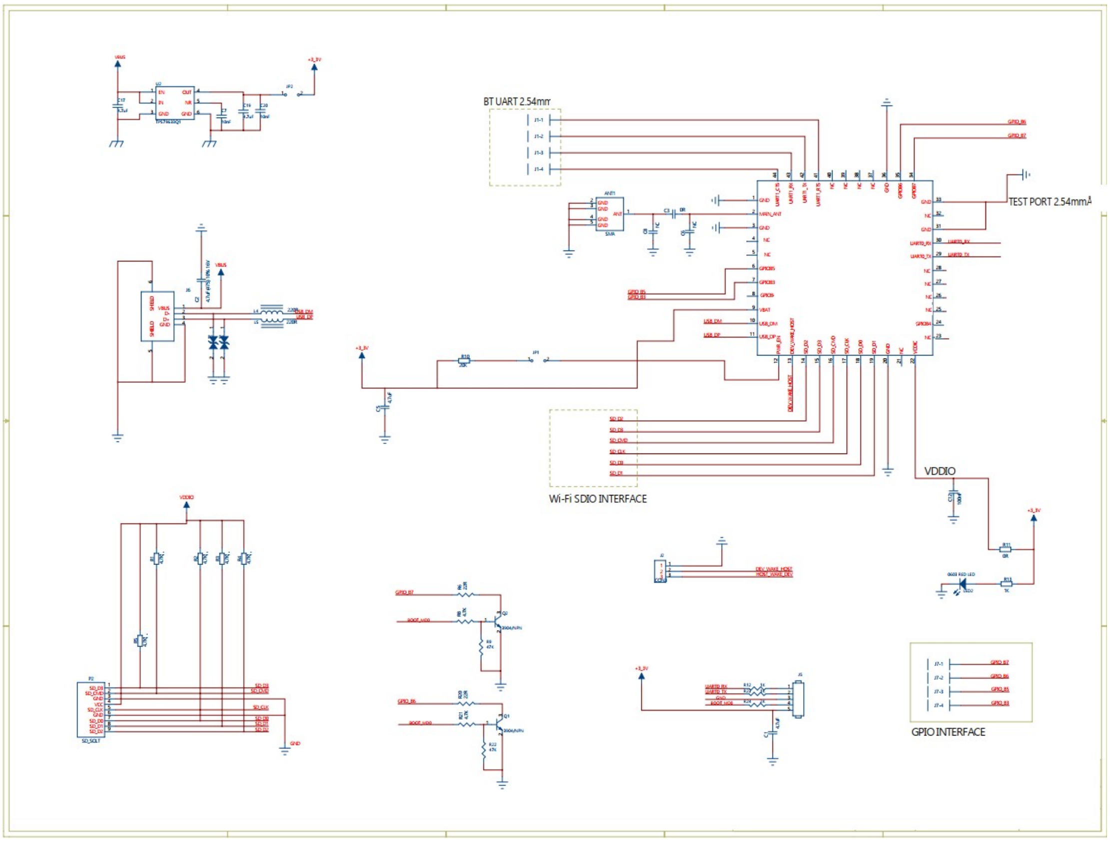
9.1 WLAN Parameters

Mode	Protocol Standard	Description
Modulation	802.11 ac/ax	OFDM/OFDMA With 256-QAM ,64-QAM,16-QAM,
	802.11 ax	OFDM/OFDMA1024-QAM
	802.11 b	DSSS With DQPSK, DBPSK,CCK
	802.11 g/n	OFDM/OFDMA With 64-QAM,16-QAM, QPSK,BPSK
Data rate	802.11 a/ac	HT/VHT 20,40 : MCS0-MCS9
	802.11 ax	HE20/40 : MCS0-MCS11
	802.11 b	1,2,5.5,11Mbps
	802.11 g	6,9,12,18,24,36,48,54Mbps
	802.11 n	HT20：MCS0-MCS7,72.2Mbps
Output Power	802.11 ax	TDB（5GHz@ HE40 MCS9）
	802.11 ax	TDB（5GHz@ HE20 MCS9）
	802.11 b	18dBm±1.5dBm（2.4GHz@11Mbps）
	802.11 g	15dBm±1.5dBm（2.4GHz@54Mbps）
	802.11 n	16dBm±1.5dBm（2.4GHz@HT40, MCS7）
	802.11 ax	15dBm±1.5dBm（2.4GHz@HE40, MCS9）
Receiver Sensitivity	802.11 ax	TDB（5GHz@ HE40 MCS9）
	802.11 ac	TDB（5GHz@ VHT40 MCS9）
	802.11 b	-85dBm±1dBm（2.4GHz@11Mbps, CCK,8%PER）
	802.11 g	-73dBm±1dBm（2.4GHz@54Mbps, OFDM,10%PER）
	802.11 n	-72dBm±1dBm（2.4GHz@HT40, MCS7,10%PER）
	802.11 ax	-67dBm±1dBm（2.4GHz@HE40, MCS9,10%PER）

9.6 Bluetooth Section

Mode	Description
Modulation	GFSK(1Mbps), π/4-DPSK(2Mbps), 8DQPSK(3Mbps)
Output Power	0≤Output Power≤+13dBm
Receiver Sensitivity	GFSK,0.1% BER 1Mbps -95dBm

10. Reference Design（参考设计）



10.1 External Antenna

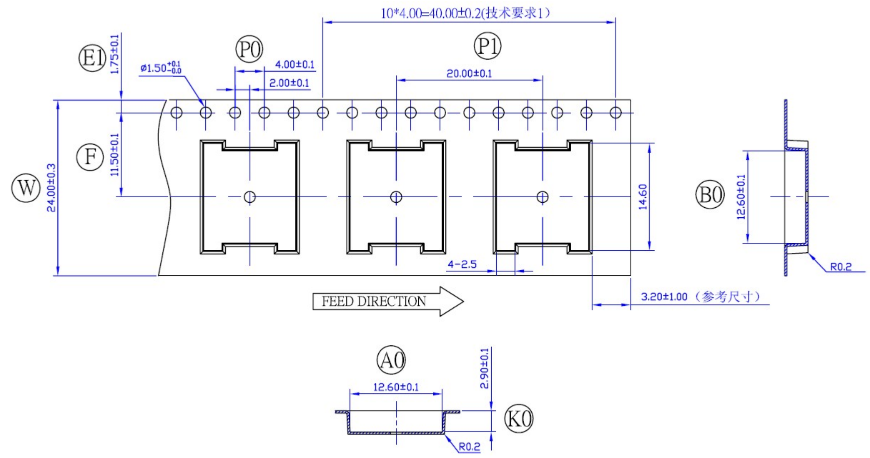
When the customer selects an external antenna, the external antenna selected must meet the parameter requirements specified in Table 10-1-1.

Table 10-1-1 Requirements on External Antenna Parameters

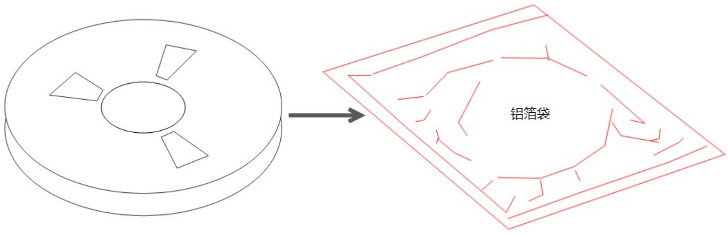
Item	Parameter
Antenna operating frequency	2.4GHz/ 5GHz
Impedance	50Ω
Return Loss	≤-10dB

11. Package（包装）

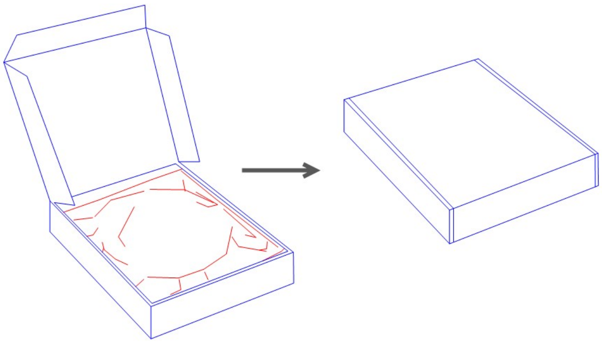
（1）编带包装



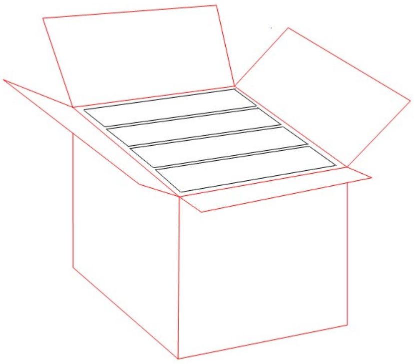
（2）胶带包装



（3）内盒包装



（4）外箱包装 354*250*362mm



（5）最小包装量 1000PCS/盘*4 盘/箱=4000PCS/箱